Abstract Submitted
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Granular Breathing[1] SURAJIT SEN, ROBERT SIMION, SUNY-Buffalo, ADAM SOKOLOW, Duke University — We study the dynamics of monodispersed and tapered granular alignments held within a fixed boundary and a moving boundary. The system is assumed to be driven at one end by imparting a constant or time dependent acceleration to the edge grain. Analytical and simulational studies show that such a driven system can eventually get "over-compressed" and begin to dilate due to repulsive grain-grain interactions. Continuous driving results in the phenomenon of granular breathing. The talk shall discuss the dynamical processes associated with granular breathing for time-independent and time-dependent driving. The phenomenon of nonlinear resonance and related processes that arise in these systems will be discussed.

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